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10/598,154	08/18/2006	Keiichi Chono	Y0647.0162	1672

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EXAMINER	
HOLDER, ANNER N	
ART UNIT	PAPER NUMBER
2483	
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10/06/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/598,154	CHONO ET AL.	
	Examiner	Art Unit	
	ANNER HOLDER	2483	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 September 2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-7,9-12,14-18,20-23,25-29 and 31-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *9,10,20,21,31 and 32* is/are allowed.

6)☒ Claim(s) *1,3-7,11,12,14-18,22,23,25-29 and 33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09/07/11* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Response to Arguments

1. Applicant's arguments, see page 13 paragraph 2, filed 09/07/11, with respect to claims 9, 10, 20, 21, 31, and 32 have been fully considered and are persuasive. The objection of claims 9, 10, 20, 21, 31, and 32 has been withdrawn.

2. Applicant's arguments, see page 13 paragraph 3, filed 09/07/11, with respect to figures 1, 2, and 7 have been fully considered and are persuasive. The objection of figures 1, 2, and 7 has been withdrawn.

3. Applicant's arguments, see page 13 paragraph 4, filed 09/07/11, with respect to claims 23 and 25-33 have been fully considered and are persuasive. The rejection of claims 23 and 25-33 has been withdrawn.

4. Applicant's arguments filed 09/07/11 have been fully considered but they are not persuasive. The examiner respectfully disagrees with applicant's arguments. As to claims 1, 12, and 23 the cited prior art discloses the video is processed on a block basis. [abstract; col. 27 lines 37-49] Thus Hibi fairly suggests and teaches setting a dead zone for each block. regarding claims 11, 22, and 33 the cited prior teaches for evaluating a relationship between a quantization width corresponding to the ideal quantization parameter, and a quantization width corresponding to a quantization parameter used for encoding output, [fig. 35 (89); col. 27 lines 47-65; col. 28 lines 35-52, code amount control output is being read upon the quantization parameter] and quantization means [fig. 35 (84); col. 27 lines 47-50] for quantizing the transformation coefficient upon setting the dead zone width in correspondence with the evaluated relationship. [fig. 35; col. 27 line 37 - col. 28 line 67] Hibi discloses the block parameter

is provided from the code amount control taking in combination with the switch control and the quantization step, the transform coefficients are quantized based upon the evaluated relationship. Hibi fairly suggests and teaches the limitations as claimed.

Allowable Subject Matter

5. Claims 9-10, 20-21, and 31-32 are allowed.

6. The following is an examiner's statement of reasons for allowance: *the cited prior art fails to teach the claim limitations as follows: transformation means for generating a transformation coefficient for each block by transforming an image from a spatial domain into a frequency domain for each block, characterized by comprising quantization means for quantizing the plurality of transformation coefficients for each block upon setting the same quantization width in the plurality of blocks, wherein said quantization means comprises dead zone generating means for analyzing visual sensitivities of the plurality of blocks, determining the quantization width in accordance with a block exhibiting high visual sensitivity, setting a dead zone width larger than a dead zone width of the block exhibiting high visual sensitivity to a block with lower visual sensitivity, and quantizing the transformation coefficient, characterized in that said dead zone generating means further comprises dead zone scale generating means for calculating the dead zone width from at least one of a prediction mode of the image, a direction of intra frame prediction of the image, motion of the image, a direction of inter frame prediction of the image, an average absolute error of the image, a variance of the image, an image range of the image, an average absolute error of a prediction error

signal of the image, and a variance of a prediction error signal of the image. Further, the cited prior art fails to disclose transformation means for generating a transformation coefficient for each block by transforming an image from a spatial domain into a frequency domain for each block, characterized by comprising quantization means for quantizing the plurality of transformation coefficients for each block upon setting the same quantization width in the plurality of blocks, wherein said quantization means comprises dead zone generating means for analyzing visual sensitivities of the plurality of blocks, determining the quantization width in accordance with a block exhibiting high visual sensitivity, setting a dead zone width larger than a dead zone width of the block exhibiting high visual sensitivity to a block with lower visual sensitivity, and quantizing the transformation coefficient, characterized in that said dead zone generating means further comprises dead zone scale generating means for calculating the dead zone width from one of a minimum value of an average absolute error of each of a target block and a neighboring block, a minimum value of a variance of the image of each of the target block and the neighboring block, and a minimum value of an image range of the image of each of the target block and the neighboring block.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 3-7, 11-18, 22-23, 25-29 and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Hibi et al. US 5,724,097.

9. As to claim claims 1, 12 , and 23, An image encoding apparatus [fig. 35; col. 27 lines 37-39] which comprises transformation means [fig. 35 (82); col. 27 lines 42-43] for generating a transformation coefficient for each block by transforming an image from a spatial domain into a frequency domain for each block, [fig. 35; col. 27 lines 42-47] characterized by comprising quantization means [fig. 35 (84); col. 27 lines 47-50] for quantizing the plurality of transformation coefficients for each block by using the same quantization width, [fig. 35 (84); col. 27 lines 47-65, quantization step is being read upon the quantization width] wherein said quantization means [fig. 35 (84); col. 27 lines 47-50] comprises means for quantizing the transformation coefficient upon setting a dead zone for each block. [fig. 35; col. 27 lines 37-67]

10. As to claims 3, 14 and 25, Hibi teaches dead zone generating means [fig. 35 (87 and 88); col. 27 lines 39-55] for setting a dead zone width corresponding to a visual sensitivity for each block. [fig. 35; col. 27 line 67 - col. 28 line 6; col. 28 line 35 - col. 29 line 7]

11. As to claims 4, 15 and 26, Hibi teaches dead zone generating means [fig. 35 (87 and 88); col. 27 lines 39-55] comprises dead zone scale generating means for setting the dead zone width to a larger width for a block with lower visual sensitivity in the spatial domain. [col. 29 lines 8-41]

12. As to claims 5, 16 and 27, Hibi teaches dead zone generating means [fig. 35 (87 and 88); col. 27 lines 39-55] comprises dead zone scale generating means or setting a dead zone width larger than a dead zone width with a predetermined quantization characteristic to a block with lower visual sensitivity in the spatial domain. [fig. 35 (88); col. 27 lines 39-55; col. 29 lines 8-28, dead zone width is increased by 3/2 to 2q (quantization step)]

13. As to claims 6, 17 and 28, Hibi teaches dead zone generating means [fig. 35 (87 and 88); col. 27 lines 39-55] comprises dead zone scale generating means [fig. 35 (88); col. 27 lines 39-55] for analyzing visual sensitivities of a plurality of blocks, [col. 28 lines 35-67] and setting the dead zone width to a larger width for a block with lower visual sensitivity of the plurality of blocks. [col. 29 lines 8-41]

14. As to claims 7, 18 and 29, Hibi teaches dead zone generating means [fig. 35 (88); col. 27 lines 39-55] comprises dead zone scale generating means [fig. 35 (88); col. 27 lines 39-55] for analyzing visual sensitivities of a plurality of blocks, [col. 28 lines 35-67] and setting a dead zone width larger than a dead zone width with a predetermined quantization characteristic to a block with lower visual sensitivity of the plurality of blocks. [col. 29 lines 8-41]

15. As to claims 11, 22 and 33, Hibi teaches transformation means [fig. 35 (82); col. 27 lines 42-43] for generating a transformation coefficient for each block by transforming an image from a spatial domain into a frequency domain for each block, [fig. 35; col. 27 lines 42-47] characterized by comprising quantization control means [fig. 35 (84); col. 27 lines 47-50] for calculating an ideal quantization parameter for encoding an input moving image with preferable image quality, [fig. 35 (89); col. 27 lines 47-65; col. 28 lines 35-52, code amount control output is being read upon the quantization parameter] dead zone scale generating means [fig. 35 (88); col. 27 lines 39-55] for evaluating a relationship between a quantization width corresponding to the ideal quantization parameter, and a quantization width corresponding to a quantization parameter used for encoding output, [fig. 35 (89); col. 27 lines 47-65; col. 28 lines 35-52, code amount control output is being read upon the quantization parameter] and quantization means [fig. 35 (84); col. 27 lines 47-50] for quantizing the transformation coefficient upon setting the dead zone width in correspondence with the evaluated relationship. [fig. 35; col. 27 line 37 - col. 28 line 67]

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yamaguchi et al. US 5,818,531; Furukawa et al. US 4,683,494; Tourapis et al. US 2004/0008899; Tao US 6,408,026; Rabbani et al. US 6,853,318; Sethuraman et al. US 6,434,196.

17. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANNER HOLDER whose telephone number is (571)270-1549. The examiner can normally be reached on M-W, M-W 8 am-3 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Ustaris can be reached on 571-272-7383. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Anner Holder/
Examiner, Art Unit 2483

/Dave Czekaj/
Primary Examiner, Art Unit 2483